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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/148,606	09/04/1998	KIYOSHI YONEDA	5586D-6885	3618

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EXAMINER	
LIANG, REGINA	
ART UNIT	**PAPER NUMBER**
2674	

DATE MAILED: 12/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/148,606	YONEDA ET AL.	
	Examiner	Art Unit	
	Regina Liang	2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 July 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 7/29/05, 10/19/05
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. Applicant's submission filed on 7/29/05 has been entered. Claims 1-27 are pending in this application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (Figs. 1-3, page 1, line 13 to page 9, line 11) in view of Higashi (US. PAT. NO. 6,136,632).

As to claims 1, 3, Fig. 1 of the admitted prior art discloses a semiconductor device in which a plurality of semiconductor elements (sampling TFTs of drain driver, pixel TFTs in the pixel area) are formed on a substrate, wherein in at least semiconductor elements (sampling TFT 46 of the drain driver 44), among the plurality of semiconductor elements, that samples data to be supplied to other semiconductor elements (pixel TFTs), a channel width of a channel region formed in a semiconductor layer to which laser annealing is applied is larger than a channel length thereof (page 6, lines 15-20 of the specification), and Fig. 2 of the admitted prior art teaches in at least the semiconductor elements (sampling TFT 46 of the drain driver), among the

plurality of semiconductor elements, that are connected to a signal line (drain electrode 57) to which data to be supplied to a drain of a corresponding one of the plurality of semiconductor elements (pixel TFTs) is input and which common to the plurality of semiconductor elements and that output data from the signal line, a channel width of a channel region is larger than a channel length thereof (page 6, lines 15-20 of the specification).

The admitted prior art does not disclose a channel width direction is neither vertical to nor parallel with regard to a side direction of the substrate, and the channel width direction is neither parallel with nor orthogonal to a primary direction of extension of the signal line. However, Higashi teaches an active matrix display having data driver section 7 which has n-type and p-type TFTs (at least semiconductor elements, this corresponds to sampling TFT of drain driver), wherein the transistor TFTs of the data driver section (7) are not aligned in the X or Y direction (see Fig. 7A, the channel width direction is not aligned in X or Y direction). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the admitted prior art to have the channel width direction is neither vertical to nor parallel with regard to a side direction of the substrate and the channel width direction is neither parallel with nor orthogonal to a primary direction of extension of the signal line as taught by Higashi since this allows a substantial reduction in the nonuniformity in the polysilicon film, whereby a semiconductor film formed on a substrate can be uniformly crystallized by means of irradiation of a laser beam while achieving high throughput.

As to claims 2, 4, 8, 13, 19, Higashi teaches laser annealing is performed to poly-crystallize an amorphous semiconductor layer and obtain a polycrystalline semiconductor layer.

As to claims 5, 10, 15, note the discussion of claim 1 above. The admitted prior art teaches the display device having a plurality of first thin- film transistors (pixel TFTs), a plurality of second thin-film transistors (sampling TFTs of drain driver).

As to claims 6, 7, 11, 12, 16, the admitted prior art teaches the second thin-film transistors (sampling TFT of the drain driver) in which the channel width is larger than the channel length, and Higashi teaches the second thin-film transistors (sampling TFTs) having the channel width direction is form in a direction different from the direction of the substrate (the sampling TFTs are not aligned in the X or Y direction).

As to claims 9, 14, note the discussion of claim 1 above. The admitted prior art as modified by Higashi does not explicitly disclose the second thin-film transistors (sampling TFTs) is set to a direction of about 45^0 relative to any one or all of a plurality of side direction of the substrate. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the admitted prior art as modified by Higashi to have the second thin-film transistors (sampling TFTs of the drain driver) to be set to a direction as claimed, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

As to claims 17, 18, 21, 22, note the discussion of claim 1 above. The admitted prior art teaches the display device having a plurality of first thin- film transistors (pixel TFTs), a plurality of second thin-film transistors (sampling TFTs of drain driver). Higashi teaches the first thin-film transistors (pixel TFTs 10) are aligned in the X and Y direction; the second thin-film transistors (sampling TFTs) are not aligned in the X and Y direction. Thus, the admitted prior art as modified by Higashi teaches the first thin-film transistors are not aligned with the direction of

the first thin-film transistors, which reads on a channel width direction of some or all of second thin-film transistors being forming non-parallel with and non-orthogonal to a channel width direction of the first thin-film transistors and the channel width direction is neither parallel with nor orthogonal to a primary direction of extension of the video signal line as claimed.

As to claim 20, note the discussion of claims 1, 9 and 17 above.

As to claims 23-27, Fig. 2 of the admitted prior art teaches a data line, the second thin-film transistors are connected to the video signal line and output display data from the video signal line to a corresponding one of the first thin-film transistors.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Regina Liang whose telephone number is (571) 272-7693. The examiner can normally be reached on Monday-Friday from 8AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard, can be reached on (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Regina Liang
Primary Examiner
Art Unit 2674

12/9/05